

## INTEROFFICE CORRESPONDENCE



Hawaiian Electric Co., Inc.

An HEI Company

May 25, 1994

To: R. B. Munger

From: T. C. Simmons *[Handwritten signature of T.C. Simmons]*

Subject: Oahu Pumped Storage Hydroelectric Project  
Updated Cost Estimates

In response to your 4/15/94 IOC, we have reviewed the Kaau and Koko Crater pumped storage hydroelectric resources. Based on our preliminary economic analysis, these resources could continue to be considered as supply-side resource options for Oahu.

### Objective

The objective of this analysis is to perform a preliminary economic analysis to determine if the Kaau and Koko Crater pumped storage hydroelectric (hydro) resources could continue to be considered as supply-side resource options for Oahu.

### Assumptions for Kaau and Koko Crater Pumped Storage Hydroelectric Resources

O & M Cost: Kaau 1,976,000 \$/year (38,000 \$/week),  
Koko Crater 2,236,000 \$/year (43,000 \$/week) (1993 \$)

Generation Capacity: 160 MW

Pumping Capacity: Kaau 162 MW, Koko Crater 160 MW

Efficiency: 75%

7 cycles per week

Cost including land: Kaau 1554 \$/KW, Koko 1543 \$/KW (1993 \$)

Life: 75 years

### Analysis

The PROSCREEN II (PROSCREEN) system was used in this analysis. Two PROSCREEN runs were made:

Run 1 - The hydro resources were available to be added from 2002 to 2011.

Run 2 - The hydro resources were available to be added only in 2002.

Given the constraints of the runs, PROSCREEN optimized the addition of resources. Attachments 1 and 2 show partial outputs from both runs. From each of these runs, two plans were selected for evaluation: 1) the least cost plan with the Kaau resource, and 2) the least cost plan with the Koko Crater resource. Additionally, two more plans were selected from Run 1: 1) the least cost plan with the Kaau resource and with an atmospheric fluidized bed combustion (AFBC) resource as the first supply-side resource, and 2) the least cost plan with the Koko Crater resource and with an AFBC resource as the first supply-side resource. Note that all of these plans do not have a simple cycle combustion turbine to replace Waiau 9 and 10, which are planned to be retired in 2008. It is assumed that the hydro resources will serve as peaking resources.

All of these plans were compared to two plans from the most recent IRP evaluation: the least cost plan (INTR-1) and the preferred plan (INTRCL-1) (see Attachment 3). Therefore, the following plans were compared:

<u>Plan</u>	<u>Description</u>
INTR-1	Least cost plan from IRP
INTRCL-1	Preferred plan from IRP
Kaau1R	Least cost plan w/ Kaau resource from Run 1 (Waiau repowering as 1st supply-side resource)
Kaau1F	Least cost plan w/ Kaau resource & AFBC as 1st supply-side resource, from Run 1
Kaau2	Least cost plan w/ Kaau resource from Run 2
Koko1R	Least cost plan w/ Koko resource from Run 1 (Waiau repowering as 1st supply-side resource)
Koko1F	Least cost plan w/ Koko resource & AFBC as 1st supply-side resource, from Run 1
Koko2	Least cost plan w/ Koko resource from Run 2

Attachment 4 shows the Total Resource Cost with and without end effects for all of the plans. Note that the difference between INTR-1, and Kaau1R and Koko1R is about \$18 million in 1993 dollars (or 0.3%) in the 20-year period (without end effects). We feel that this is not a large enough difference to eliminate the hydro resources from further consideration. (Note that plans INTR-1, Kaau1R, and Koko1R are similar, with Waiau repowering as the first supply-side resources.)

The difference between INTRCL-1, and Kaau1R and Koko1R is only about \$2 million in the 20-year period. However, this is not a fair comparison since plan INTRCL-1 has a coal unit as the first supply-side resource (with the accompanying cost premium and fuel diversity benefits), whereas plans Kaau1R and Koko1R have Waiau repowering as the first supply-side resources.

A fairer comparison is between INTRCL-1 and Kaau1F and Koko1F. As can be seen in Attachments 1 and 3, these plans are very similar, with an AFBC as the first supply-side resource in each plan. In this comparison, the difference is about \$34 million in 1993 dollars (or 0.5%) in the 20-year period (see Attachment 4). Again, we feel that this is not a large enough difference to eliminate the hydro resources from further consideration.

Attachment 5 compares the annual revenue required for the plans (in current dollars).

The PROSCREEN runs indicate that the hydro units are operating. They are running at annual capacity factors ranging from 1 to 13%. In comparison, simple cycle combustion turbines in plans INTR-1 and INTRCL-1 are operating at capacity factors ranging from 0 to 3%.

### Conclusion

The analysis indicates differences in total resource cost of about \$18 to \$34 million (or 0.3 to 0.5%) between plans with and without the pumped storage hydroelectric resources (20-year period, 1993 \$). Based on the assumptions of this preliminary analysis, the Kaau and Koko Crater pumped storage hydroelectric resources could continue to be considered as supply-side resource options for Oahu.

### Attachments

TCS:dy

cc: J. Dizon  
A. Seki  
L. Lopez (Okahara & Associates, Inc.)  
IRP GENPP 22, Studies/Statistics  
GPD-cf

PSH2

PROVIEW LEAST COST OPTIMIZATION SYSTEM  
STUDY PERIOD PLAN COMPARISON

KaaaulR

Koko1R

PLAN RANK	1	2	3	4	5	6	7	8
1993								
1994								
1995	C&I (-1)							
	NEWC(-1)							
	RWH (-1)							
	CUST(-1)							
1996								
1997								
1998								
1999								
2000	INLM(-1)							
	INEX(-1)							
	STBY(-1)							
2001								
2002								
2003								
2004								
2005	REP1(-1)							
2006	REP2(-1)							
2007								
2008							SC (-1)	
2009	FBC1(-1)	FBC1(-1)	KA4 (-1)	KA4 (-1)	KO4 (-1)	KO4 (-1)	SC (-1)	FBC1(-1)
2010								
2011		SC (-1)	FBC1(-1)	SC (-1)	FBC1(-1)	SC (-1)	FBC1(-1)	FBC1(-1)
2012	REU(128)	REU(50)		REU(6)		REU(6)		
2013	REU(158)	REU(81)		REU(39)		REU(39)	REU(4)	REU(15)
P.V. TOTAL COST:								
PLANNING PERIOD	6369816.5	6384309.5	6416810.5	6376099.5	6416625.5	6375907.0	6388786.0	6435685.0
% DIFFERENCE	0.00%	0.23%	0.74%	0.10%	0.73%	0.10%	0.30%	1.03%
END EFFECTS PERIOD	5932593.5	5954026.5	5978704.5	6020038.5	5979774.5	6021101.0	6009120.0	5992960.0
% DIFFERENCE	0.00%	0.36%	0.78%	1.47%	0.80%	1.49%	1.29%	1.02%
STUDY PERIOD	12302410.0	12338336.0	12395515.0	12396138.0	12396400.0	12397008.0	12397906.0	12428645.0
% DIFFERENCE	0.00%	0.29%	0.76%	0.76%	0.76%	0.77%	0.78%	1.03%
PLANNING PERIOD RANK	1	4	11	3	10	2	5	14

STUDY PERIOD = PLANNING PERIOD + END EFFECTS PERIOD

DSM Bundles

C&amp;I = Commercial &amp; Industrial (Prescriptive/Existing Market)

CUST = Custom Rebate (Industrial &amp; Commercial Sectors)

INEX = Interruptible Rate Program (Expanded Option-Medium Participation)

INLM = Interruptible Rate Program (Limited Option-Medium Participation)

NEWC = Commercial &amp; Industrial (New Market)

RWH = Residential Water Heating (New &amp; Existing Market)

STBY = Stand-By Generator Program

Supply-Side Resources

REP1, REP2 = Waiau Repowering

FBC1 = Fluidized Bed Combustion

KA4 = Kauai Crater Pumped Storage Hydroelectric

KO4 = Koko Crater Pumped Storage Hydroelectric

SC = Simple Cycle Combustion Turbine

REU = Reliability Equalization Unit

PROVIEW LEAST COST OPTIMIZATION SYSTEM  
STUDY PERIOD PLAN COMPARISON

KaaulF KokolF

PLAN RANK	9	10	11	12	13	14	15	16
1993								
1994								
1995	C&I ( 1)							
	NEWC( 1)							
	RWH ( 1)							
	CUST( 1)							
1996								
1997								
1998								
1999								
2000	INLM( 1)							
	INEX( 1)							
	STBY( 1)							
2001								
2002								
2003								
2004								
2005	FBC1( 1)	FBC1( 1)	REP1( 1)	REP1( 1)	FBC1( 1)	FBC1( 1)	FBC1( 1)	REP1( 1)
2006			SC ( 1)	REP2( 1)				SC ( 1)
2007								
2008								
2009	KA4 ( 1)	KO4 ( 1)	FBC1( 1)	KA4 ( 1)	KA4 ( 1)	FBC1( 1)	KO4 ( 1)	FBC1( 1)
2010	REP1( 1)	REP1( 1)				REP1( 1)		
			SC ( 1)	KO4 ( 1)	FBC1( 1)		FBC1( 1)	FBC1( 1)
2011								
2012	REU( 77)	REU( 77)	REU( 105)		REU( 67)	REU( 116)	REU( 67)	REU( 38)
2013	REU( 108)	REU( 108)	REU( 139)		REU( 98)	REU( 146)	REU( 98)	REU( 69)
<hr/>								
P.V. TOTAL COST:								
PLANNING PERIOD	6452751.0	6452572.5	6397755.0	6412396.5	6471870.5	6474535.5	6471711.5	6442237.5
% DIFFERENCE	1.30%	1.30%	0.44%	0.67%	1.60%	1.64%	1.60%	1.14%
END EFFECTS PERIOD	5983523.0	5984557.5	6047118.0	6039531.5	5993073.5	5990489.5	5994221.5	6038320.5
% DIFFERENCE	0.86%	0.88%	1.93%	1.80%	1.02%	0.98%	1.04%	1.78%
STUDY PERIOD	12436274.0	12437130.0	12444873.0	12451928.0	12464944.0	12465029.0	12465933.0	12480558.0
% DIFFERENCE	1.09%	1.10%	1.16%	1.22%	1.32%	1.32%	1.33%	1.45%
PLANNING PERIOD RANK	21	20	8	9	28	29	27	16

STUDY PERIOD = PLANNING PERIOD + END EFFECTS PERIOD

PSH3

PROVIEW LEAST COST OPTIMIZATION SYSTEM  
STUDY PERIOD PLAN COMPARISON

Kaau2

PLAN RANK	1	2	3	4	5	6	7	8
<hr/>								
1993								
1994								
1995	C&I ( 1)							
	NEWC( 1)							
	RWH ( 1)							
	CUST( 1)							
1996								
1997								
1998								
1999								
2000	INLM( 1)							
	INEX( 1)							
	STBY( 1)							
2001								
2002							KA4 ( 1)	KA4 ( 1)
2003								
2004								
2005	REP1( 1)	FBC1( 1)						
2006	REP2( 1)	REP2( 1)	REP2( 1)	REP2( 1)	SC ( 1)			
2007								
2008			SC ( 1)				REP1( 1)	REP1( 1)
2009	FBC1( 1)	FBC1( 1)	SC ( 1)	FBC1( 1)	FBC1( 1)	FBC1( 1)	REP2( 1)	REP2( 1)
2010						REP1( 1)		
2011			SC ( 1)	FBC1( 1)	FBC1( 1)	SC ( 1)	FBC1( 1)	SC ( 1)
2012	REU( 128)	REU( 50)				REU( 105)	REU( 116)	REU( 6)
2013	REU( 158)	REU( 81)	REU( 4)	REU( 15)	REU( 139)	REU( 146)		REU( 39)
<hr/>								
P.V. TOTAL COST:								
PLANNING PERIOD	6369816.5	6384309.5	6388786.0	6435685.0	6397755.0	6474535.5	6532957.5	6492246.0
% DIFFERENCE	0.00%	0.23%	0.30%	1.03%	0.44%	1.64%	2.56%	1.92%
END EFFECTS PERIOD	5932593.5	5954026.5	6009120.0	5992960.0	6047118.0	5990489.5	5941392.5	5982727.0
% DIFFERENCE	0.00%	0.36%	1.29%	1.02%	1.93%	0.98%	0.15%	0.85%
STUDY PERIOD	12302410.0	12338336.0	12397906.0	12428645.0	12444873.0	12465025.0	12474350.0	12474973.0
% DIFFERENCE	0.00%	0.29%	0.78%	1.03%	1.16%	1.32%	1.40%	1.40%
PLANNING PERIOD RANK	1	2	3	5	4	9	15	11

STUDY PERIOD = PLANNING PERIOD - END EFFECTS PERIOD

PROVIEW LEAST COST OPTIMIZATION SYSTEM  
STUDY PERIOD PLAN COMPARISON

Koko2

PLAN RANK	9	10	11	12	13	14	15	16
1993								
1994								
1995	C&I ( 1) NEWC( 1) RWH ( 1) CUST( 1)							
1996								
1997								
1998								
1999								
2000	INLM( 1) INEX( 1) STBY( 1)							
2001								
2002	KO4 ( 1)	KO4 ( 1)			KA4 ( 1)	KO4 ( 1)	KA4 ( 1)	KO4 ( 1)
2003								
2004								
2005		REP1( 1)	FBC1( 1)					
2006		SC ( 1)						
2007								
2008	REP1( 1)	REP1( 1)		SC ( 1)	FBC1( 1)	FBC1( 1)	FBC1( 1)	FBC1( 1)
2009	REP2( 1)	REP2( 1)	FBC1( 1)	SC ( 1)				
2010					REP1( 1)	REP1( 1)		
2011	FBC1( 1)	SC ( 1)	FBC1( 1)	FBC1( 1)			FBC1( 1)	FBC1( 1)
2012		REU( 6)	REU( 38)	REU( 96)	REU( 77)	REU( 77)	REU( 67)	REU( 67)
2013		REU( 39)	REU( 69)	REU( 124)	REU( 108)	REU( 108)	REU( 98)	REU( 98)
P.V. TOTAL COST:								
LANNING PERIOD	6532677.0	6491958.5	6442237.5	6449470.0	6551745.0	6551489.0	6570865.0	6570628.0
% DIFFERENCE	2.56%	1.92%	1.14%	1.25%	2.86%	2.85%	3.16%	3.15%
END EFFECTS PERIOD	5942827.0	5984153.5	6038320.5	6052019.0	5954093.0	5955491.0	5963644.0	5965156.0
% DIFFERENCE	0.17%	0.87%	1.78%	2.01%	0.36%	0.39%	0.52%	0.55%
STUDY PERIOD	12475504.0	12476112.0	12480558.0	12501489.0	12505838.0	12506980.0	12534509.0	12535784.0
% DIFFERENCE	1.41%	1.41%	1.45%	1.62%	1.65%	1.66%	1.89%	1.90%
LANNING PERIOD RANK	14	10	6	7	17	16	23	22

STUDY PERIOD = PLANNING PERIOD + END EFFECTS PERIOD

FINAL CANDIDATE PLANS  
RESOL. E MIX  
December 1993

Year	Plans										Year
	COAL-1	INTR-1	INTR-3	INTRCL-1	INTRCC-1	NDSM-1	CCREP-1	CEC-1	CEC-6	CEC-105	
1994											
1995	C&I NEWC RWH CUST	C&I NEWC RWH CUST	C&I NEWC RWH CUST	C&I NEWC RWH CUST	C&I NEWC RWH CUST		C&I NEWC RWH CUST	C&I NEWC RWH CUST WIND	C&I NEWC RWH CUST	C&I NEWC RWH CUST WIND	1994 1995
1996											1996
1997											1997
1998											1998
1999											1999
2000	INLM INEX STBY	INLM INEX STBY	INLM INEX STBY	INLM INEX STBY							2000
2001											2001
2002						REP1 101					2002
2003											2003
2004					P1DT 82	REP2 101	P1DT 82				2004
2005	AFBC 190	REP1 101	REP1 101	AFBC 190	P2DT 82	AFBC 190	P2DT 82	GCC 273	GCC 273	GCC 273	2005
2006		REP2 101	REP2 101				P3DT 76				2006
2007	REP1 101				P3DT 76						2007
2008						AFBC 190					2008
2009	SCCT 82	AFBC 190	SCCT 82	SCCT 82	SCCT 82	SCCT 82	SCCT 82 REP1 101	SCCT 82 BIOM 50	SCCT 82 BIOM 50	SCCT 82 BIOM 50	2009
2010	REP2 101			REP2 101	REP1 101 REP2 101		REP2 101				2010
2011			P2DT 82 P3DT 76					GCC 273	KOKO 160	GCC 273 STPT 80	2011
2012	REU (110)	REU (50)	REU (1)	REU (50)	REU (1)	REU (145)	REU (61)	REU (84)	REU (92)		2012
2013	REU (142)	REU (81)	REU (34)	REU (81)	REU (34)	REU (183)	REU (94)	REU (116)	REU (124)	REU (27)	2013

HEDCO-R-509  
Docket No. 725  
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Notes:

- o Information from PROVIEW Least Cost Optimization System Report
- o File = IRPredoA.xls
- o 12/21/93

<u>Plan</u>	Total Resource Cost with End Effects <u>\$1,000</u>	Total Resource Cost without End Effects <u>\$1,000</u>
INTR-1	12,348,792	6,398,608
INTRCL-1	12,357,292	6,418,542
Kaau1R	12,395,515	6,416,811
Kaau1F	12,436,274	6,452,751
Kaau2	12,474,350	6,532,958
Koko1R	12,396,400	6,416,626
Koko1F	12,437,130	6,452,573
Koko2	12,475,504	6,532,677

Difference from INTR-1 (least cost plan)

<u>Plan</u>	Total Resource Cost with End Effects <u>\$1,000</u>	% Diff	Total Resource Cost without End Effects <u>\$1,000</u>	% Diff
INTR-1	0	0.0	0	0.0
INTRCL-1	8,500	0.1	19,934	0.3
Kaau1R	46,723	0.4	18,203	0.3
Kaau1F	87,482	0.7	54,143	0.8
Kaau2	125,558	1.0	134,350	2.1
Koko1R	47,608	0.4	18,018	0.3
Koko1F	88,338	0.7	53,965	0.8
Koko2	126,712	1.0	134,069	2.1

Difference from INTRCL-1 (preferred plan)

<u>Plan</u>	Total Resource Cost with End Effects <u>\$1,000</u>	% Diff	Total Resource Cost without End Effects <u>\$1,000</u>	% Diff
INTR-1	-8,500	-0.1	-19,934	-0.3
INTRCL-1	0	0.0	0	0.0
Kaau1R	38,223	0.3	-1,731	0.0
Kaau1F	78,982	0.6	34,209	0.5
Kaau2	117,058	0.9	114,416	1.8
Koko1R	39,108	0.3	-1,916	0.0
Koko1F	79,838	0.6	34,031	0.5
Koko2	118,212	1.0	114,135	1.8

Notes:

INTR-1 is the least cost plan from HECO Rebuttal Testimony, Docket No. 7257.

INTRCL-1 is the preferred plan from HECO Rebuttal Testimony, Docket No. 7257.

Kaau1R is the least cost plan with the Kaau pumped storage unit, and with Waiau repowering as 1st supply-side resource, from PROSCREEN Run 1 (PSH2.SAV, plan #3).

Kaau1F is the least cost plan with the Kaau pumped storage unit, and with fluidized bed as 1st supply-side resource, from PROSCREEN Run 1 (PSH2.SAV, plan #9).

Kaau2 is the least cost plan with the Kaau pumped storage unit from PROSCREEN Run 2 (PSH3.SAV, plan #7).

Koko1R is the least cost plan with the Koko pumped storage unit, and with Waiau repowering as 1st supply-side resource from PROSCREEN Run 1 (PSH2.SAV, plan #5).

Koko1F is the least cost plan with the Koko pumped storage unit, and with fluidized bed as 1st supply-side resource from PROSCREEN Run 1 (PSH2.SAV, plan #10).

Koko2 is the least cost plan with the Koko pumped storage unit from PROSCREEN Run 2 (PSH3.SAV, plan #9). 1993 \$.

Revenue Required (\$1,000)								
	INTR-1	INTRCL-1	Kaau1R	Kaau1F	Kaau2	Koko1R	Koko1F	Koko2
1993	305,839	305,839	305,839	305,839	305,839	305,839	305,839	305,839
1994	328,053	328,053	328,053	328,053	328,053	328,053	328,053	328,053
1995	365,913	365,913	365,913	365,913	365,913	365,913	365,913	365,913
1996	394,657	394,657	394,657	394,657	394,657	394,657	394,657	394,657
1997	430,988	430,988	430,988	430,988	430,988	430,988	430,988	430,988
1998	466,257	466,257	466,257	466,257	466,257	466,257	466,257	466,257
1999	504,969	504,969	504,969	504,969	504,969	504,969	504,969	504,969
2000	535,697	535,697	535,697	535,697	535,697	535,697	535,697	535,697
2001	581,755	581,755	581,755	581,755	581,755	581,755	581,755	581,755
2002	623,061	623,061	623,061	623,061	697,983	623,061	697,824	
2003	667,590	667,590	667,590	667,590	747,315	667,590	667,590	747,145
2004	712,654	712,654	712,654	712,654	790,646	712,654	712,654	790,496
2005	811,760	860,200	811,760	860,200	849,805	811,760	860,200	849,679
2006	890,973	925,388	890,973	925,388	897,717	890,973	925,388	897,617
2007	954,779	980,290	954,779	980,290	961,200	954,779	980,290	961,124
2008	1,017,007	1,038,649	1,017,007	1,038,649	1,068,252	1,017,007	1,038,649	1,068,171
2009	1,209,417	1,173,198	1,172,453	1,188,673	1,159,176	1,172,254	1,188,505	1,159,159
2010	1,346,083	1,324,823	1,290,748	1,356,513	1,276,630	1,290,526	1,356,318	1,276,635
2011	1,403,571	1,389,090	1,465,505	1,422,300	1,450,693	1,465,341	1,422,133	1,450,757
2012	1,501,891	1,487,846	1,578,725	1,527,472	1,564,513	1,578,582	1,527,309	1,564,590
2013	1,617,844	1,604,210	1,683,927	1,646,580	1,668,718	1,683,828	1,646,472	1,668,842

#### Difference from INTR-1 (least cost plan)

##### Revenue Required (\$1,000)

	INTR-1	INTRCL-1	Kaau1R	Kaau1F	Kaau2	Koko1R	Koko1F	Koko2
1993	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0
2002	0	0	0	74,922	0	0	74,763	0
2003	0	0	0	79,725	0	0	79,555	0
2004	0	0	0	77,992	0	0	77,842	0
2005	0	48,440	0	48,440	38,045	0	48,440	37,919
2006	0	34,415	0	34,415	6,744	0	34,415	6,644
2007	0	25,511	0	25,511	6,421	0	25,511	6,345
2008	0	21,642	0	21,642	51,245	0	21,642	51,164
2009	0	36,219	-36,964	20,744	-50,241	-37,163	-20,912	-50,258
2010	0	21,260	-55,335	10,430	-69,453	-55,557	10,235	-69,448
2011	0	-14,481	61,934	18,729	47,122	61,770	18,562	47,186
2012	0	-14,045	76,834	25,581	62,622	76,691	25,418	62,699
2013	0	-13,634	66,083	28,736	50,874	65,984	28,628	50,998

#### Difference from INTRCL-1 (preferred plan)

##### Revenue Required (\$1,000)

	INTR-1	INTRCL-1	Kaau1R	Kaau1F	Kaau2	Koko1R	Koko1F	Koko2
1993	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0
2002	0	0	0	74,922	0	0	74,763	0
2003	0	0	0	79,725	0	0	79,555	0
2004	0	0	0	77,992	0	0	77,842	0
2005	0	-48,440	0	48,440	38,045	0	48,440	37,919
2006	0	-34,415	0	34,415	6,744	0	34,415	6,644
2007	0	-25,511	0	25,511	6,421	0	25,511	6,345
2008	0	-21,642	0	21,642	51,245	0	21,642	51,164
2009	0	36,219	0	-36,964	20,744	-50,241	-37,163	-20,912
2010	0	21,260	0	-55,335	10,430	-69,453	-55,557	-10,235
2011	0	14,481	0	61,934	18,729	47,122	61,770	18,562
2012	0	14,045	0	76,834	25,581	62,622	76,691	25,418
2013	0	-13,634	0	66,083	28,736	50,874	65,984	28,628

Note:

From Utility Cost from PROVIEW System Cost Report  
Current \$.